A detailed electron micrograph of a nerve ending, showing a large, roughly circular structure filled with numerous small, dark, spherical vesicles. The vesicles are densely packed in the lower half of the structure and more sparsely distributed in the upper half. The structure is surrounded by a complex network of membranes and smaller vesicles. The overall appearance is that of a highly organized cellular structure, likely a presynaptic terminal.

science news

DEC. 4, 1976
VOL. 110, NO. 23, 353-368

ACTION AT THE NERVE ENDING

Show and tell ...professionally

High schoolers whose science fair exhibits won their way to the International Science and Engineering Fair at Denver this spring may already have learned some lessons about communicating science that many a professional has yet to learn. They have succeeded in a format that is catching on fast.

There is nothing sacred about standing up in front of a seated audience and delivering a lecture. Major professional gatherings now permit an alternative—poster sessions. Here the audience strolls by, sampling visually. When one sees something interesting, one stops. Conversation ensues at whatever level of depth the parties can handle. Information is traded. Boredom is minimized.

How to make your story stand up and attract interest can be learned young. *Good photography is a great help.* A big print can snap the passerby to attention and convey the heart of the matter. Good science that goes unnoticed might as well be bad science. That's reason enough for a career scientist to get into photography while still in high school.

Our package of photographic hints for science fair contestants is free for the asking from Kodak, Department 841, Rochester, N.Y. 14650.



with Reverse
Polish
Notation

CORVUS 500 SCIENTIFIC CALCULATOR

More calculating power than the HP21
More memory registers than the SR51
Get the best for less!

Formerly \$84.95

NOW ONLY \$69.95

from GLOBAL

This entry in the Scientific Calculator field with its efficiency and simplicity of entry, powerful 4-register stack with 10 memory registers, 12-digit display (scientific format of 10-digit mantissa, 2-digit exponent), total capability in scientific functions, plus additional capabilities in statistics, conversions and business, is the top value on the market. Check this calculator, feature by feature, against any other similar calculator available.

10 Memory Exchange with Last X Register • 4 Level Stack, Rotate Stack • RPN (Reverse Polish Notation) • Memory Store and Recall 10 Registers • Trig (Sine, Cosine, Tangent, INV) • Log, LN • Hyperbolic Rectangular to Polar and Inverse Hyperbolic (Sinh, Cosinh, Tanh, INV) • $x \sqrt{y}$ through INVERSE • y^x , e^x , $10^x \sqrt{x}$, $1/x$, $x!$, $x \leftrightarrow y$, π , CHS • Degree-

Radian Mode Selection • Degree-Radian Conversion • Recall Last x • Polar to Rectangular Conversion • Fixed Decimal Point Option • Scientific Notation, Fixed and Floating • 12 Digit Accuracy (10 digit mantissa, 2 digit exponent) • Mean and Standard Deviation • %, $\Delta\%$, $\Sigma+$, $\Sigma-$ • Product—Memories • Fahrenheit to Centigrade Direct Conversion • Centigrade to Fahrenheit Direct Conversion • Kilograms to LBS, Direct Conversion • Litres to Gallons, Direct Conversion • LBS to Kilograms, Direct Conversion • Gallons to Litres, Direct Conversion • Inch to Centimeter, Direct Conversion • Centimeter to Inch, Direct Conversion.

Combining ease of entry with the most versatile keyboard available, the best viewing angle, brightness and readability with the most calculating power available... the Corvus 500, at its price is

the best buy of any comparable equipment on the market today.

PROVE IT TO YOURSELF! Try the Corvus 500 for 10 days... FREE! Prove to yourself that it meets your every calculating need. If you are not satisfied, for any reason, your full purchase price will be refunded.

The Corvus 500 is Complete! Everything you need to use your new Corvus 500 is in the package:

- ✓ Rechargeable Nickel-Cadmium Batteries
- ✓ Adapter/Charger
- ✓ Soft Carrying Case
- ✓ Instruction Manual

The compact, contoured case is 5½" long, 3" wide, 1¼" high and weighs only 8 oz.

The Corvus 500 is guaranteed against defects in materials and workmanship for a period of one year from the date of delivery.

**TOLL-FREE ORDERING
NATIONAL: 800/621-2307
ILLINOIS: 800/972-2668**

Both phone and mail orders accepted. Postage prepaid with Check or Money Order. BankAmericard or Master Charge Cards accepted. Illinois residents add 5% Sales Tax. Add \$2.50 for postage and handling.

GLOBAL

Div. of Global Tabulating Co., Inc.
1231 W. Washington Blvd., Chicago, Ill. 60607

CALL OR WRITE TODAY

executive health

the report that briefs you on what to watch

©WORLD COPYRIGHT RESERVED 1976 BY EXECUTIVE PUBLICATIONS

Volume X, Number 5

Pickfair Bldg., Rancho Santa Fe, Calif. 92067

Area 714:756-2600

Alton Ochsner, M.D.

ON THE ROLE OF VITAMINS C AND E IN MEDICINE

*A world-famous surgeon tells you how and why
he uses these two essential vitamins*

PUBLISHER'S NOTE: *Dr. Ochsner is one of the outstanding international leaders in modern medical progress. Now Emeritus Professor of Surgery at Tulane University School of Medicine, he maintains an active practice at the famed Ochsner Clinic in New Orleans. As a member of our Editorial Board, we have asked him, out of his unique long personal experience with vitamins C and E, to tell you how and why he uses them.*

—Richard Stanton

The American public has become very health-conscious which is extremely desirable because most of us, when we arrive in this troubled world, are endowed with the most marvelously efficient mechanism ever devised, and much depends on us whether this mechanism will function properly and last without becoming prematurely obsolete.

No longer is longevity the principal consideration, and rightly so, because the desideratum is healthy and useful life as long as possible. Because of the health-consciousness of the public, people are avid for information concerning their health and factors which may

improve it. It is inconsistent, however, that individuals concerned about remaining healthy and prolonging a useful life, adopt practices which are definitely known to accelerate aging, produce disabling illness, and shorten life. These are the use of tobacco, the abuse of alcohol, and excesses of all kinds.

Vitamin use has been a controversial subject for a number of years, and although vitamin deficiency is extremely undesirable, can be hazardous and even fatal, often vitamins are used when they are not needed. However, with advancing age it is probably desirable to use vitamin supplements because of de-

EDITORIAL BOARD

SIR HANS KREBS, M.D., F.R.C.P. (England), Nobel Laureate in Physiology and Medicine. Emeritus Professor of Biochemistry, Oxford University, Metabolic Research Laboratory, Nuffield Department of Clinical Medicine, Radcliffe Infirmary, Oxford, England.

RICHARD L. BOHANNON, M.D., F.A.C.P., Lieutenant-General, United States Air Force (Ret.); Medical Director, The Institute for Aerobics Research, Dallas, Texas.

HARDIN B. JONES, Ph.D., Professor of Medical Physics and Physiology, Assistant Director, Donner Laboratory of Medical Research, University of California, Berkeley.

LEONARD HAYFLICK, Ph.D., Professor of Medical Microbiology, Stanford University School of Medicine, Stanford, California.

ROGER J. WILLIAMS, Ph.D., D.Sc., Professor of Chemistry, Co-founder and Consultant, Clayton Foundation Biochemical Institute, The University of Texas; Past President, The American Chemical Society, Austin, Texas.

ALBERT SZENT-GYORGYI, M.D., Ph.D., Nobel Laureate for Physiology and Medicine, Laboratory of the Institute for Muscle Research, Marine Biological Laboratory, Woods Hole, Massachusetts.

JOHN K. LATTIMER, M.D., Sc.D., Professor and Chairman, Department of Urology, College of Physicians and Surgeons, Columbia University; Director, Squier Urological Clinic and Director, Urological Service, Presbyterian Hospital, New York City.

JOHN STIRLING MEYER, M.D., Professor, Department of Neurology, Baylor College of Medicine; Director, Baylor-Methodist Center for Cerebrovascular Disease, Texas Medical Center, Houston, Texas.

OLON PALMER, Jr., M.D., Scripps Clinic and Research Foundation, La Jolla, California.

HANS SELYE, C.C., M.D., Ph.D., D.Sc., F.R.S. (C), Professor and Director of the Institute for Experimental Medicine and Surgery, University of Montreal, Canada.

LINUS PAULING, Ph.D., Nobel Laureate in Chemistry and in Peace; Emeritus Professor of Chemistry, Stanford University, Stanford, California.

MARK D. ALTSCHULE, M.D., Visiting Professor of Medicine, Harvard Medical School; Lecturer in Medicine, Yale University; Staff Consultant, Boston City Hospital; Attending Physician, Boston Veterans Administration Hospital, Boston, Massachusetts.

ALTON OCHSNER, M.D., Senior Consultant in Surgery, Ochsner Clinic and Ochsner Foundation Hospital and Emeritus Professor of Surgery, Tulane University School of Medicine, New Orleans, Louisiana.

DEMETRIO SODI-PALLARES, M.D., Professor of Medicine, Chief of the Department of Electro-Vectorcardiography, Instituto Nacional de Cardiologia, Mexico, D.F.

JOHN YUDKIN, M.D., B.Ch., Ph.D., B.Sc., M.R.C.P., F.R.I.C., Emeritus Professor of Nutrition and Dietetics, Sir John Atkins Laboratories, Queen Elizabeth College, University of London, London, England.

“HOW LONG WILL I LIVE?”

Before you get any older, isn't it time you find out how to take the best care you can of the only body you will ever have?

What keeps well people well? Medical men have long concentrated upon sick people and how to get them well . . . not upon well people and how to keep them well. Now many top research scientists are concentrating their efforts on *preventive medicine* . . . *how to keep well people well*.

May we suggest that you get the benefits of this new research for yourself? Do as so many thousands of executives do. Subscribe to Executive Health Report. The members of our *Editorial Board* are among the world's most distinguished authorities on *preventive medicine*. Their wise advice can help you not only live longer but enjoy those extra years! (Note their high qualifications as shown on opposite page.)

Executive Health Report is not sold on newsstands but only by private subscription at \$18 a year in the U.S.A. and its possessions. \$19 a year in Canada and Mexico. All other countries \$24 by surface mail, \$28 by air mail. Individual reports (back issues) \$1.50 per copy.

Subscribe now under this unusual introductory offer:

(1) Your choice of any three of the reports listed below (\$1.50 each) FREE!

(2) Your money back at anytime during the entire year if you do not find our reports live up to your expectations.

Never forget: “Men's lives are chains of chances” but as Euripides saw clearly so long ago: “Chance fights ever on the side of the prudent.” Your only insurance against “tomorrow” is what you do today. You have but one life . . . doesn't it make sense to find out how to take the best care of it you can?

Please study the reports listed here and circle your three choices:

Sir Hans Krebs, M.D.: On the overuse and misuse of medication. Too many patients are being made ill by drugs due to their own or their physician's carelessness.

Alton Ochsner, M.D.: “On the Role of Vitamins C and E in Medicine.” A world-famous surgeon tells you how and why he uses these two essential vitamins.

John K. Lattimer, M.D., Sc.D.: On That Treacherous Gland . . . Your Prostate.

On Fatigue, the Great Deceiver: Why most men never get their “second wind.”

If You Sit At a Desk All Day, how to avoid a pot-belly and double-chin.

Never Take a Chance. Never Ignore Any Sign of a TIA (Transient Ischemic Attack) such as a sudden temporary weakness of an arm or leg.

The Anatomy of Courage. Some truths a man must learn to accept about life (and what he must do if he is to face up to them).

120/80 or what? High blood pressure: the hazard of your executive job.

The executive's dilemma: “Now I lay me down to sleep” (I hope!).

On “The Horizontal Exercise.” New research findings about sex and how to keep your middle age young!

John Yudkin, M.D.: On “This Slimming Business” . . . The truth about the prevention and cure of overweight!

Linus Pauling, Ph.D.: What about Vitamin E? Eminent investigators now suspect it may be one of the key factors to help resist disease and slow the aging process.

Go easy gentlemen, too much social drinking damages your liver (even though you may feel well, eat well, and never get tight!)

Mark D. Altschule, M.D.: Is it true what they say about cholesterol? Do so many of our favorite foods, such as eggs, that contain cholesterol increase your risk of heart disease? Or are those TV ads for “substitute” foods that loudly proclaim: “No cholesterol, no animal fat” a lot of pseudo-scientific nonsense?

“The non-dieting diet.” Walking is magic to keep or win back a strong, lean body (and that is just the first of its great health benefits.)

On how to live 90 to 100 healthy years! (The syndrome of longevity . . . its 7 great “constants”).

On The Arthritis Mystery. Can what you eat—or don't eat—make you arthritis-prone or arthritis-resistant?

Alton Ochsner, M.D.: On “The Chair Disease” . . . Why blood clots in your

veins are a little-realized occupational hazard of desk-bound executives.

Hans Selye, M.D.: On Stress Without Distress. Your mind can make or break you!

The B Vitamins . . . Part I. On B₁₂ . . . When to suspect a deficiency of this remarkable vitamin in your diet.

Stephen R. Elek, M.D.: On “The Hurry-up Disease.” Why it may be a key factor that triggers heart attacks as early as 40.

The B Vitamins . . . Part II. On Vitamin B₆ (Pyridoxine) “The Sleeping Giant of Nutrition.”

Linus Pauling, Ph.D.: For the Best of Health, How Much Vitamin C Do You Need? People who take the optimum amount of vitamin C may well have, at each age, only one quarter as much illness and chance of dying as those who do not take extra vitamin C.

The B Vitamins, Part IV . . . On Folic Acid: The most commonly deficient B vitamin.

George C. Griffith, M.D.: On those irregular heart beats (arrhythmias). Some mean little or nothing, but others warn your heart is in trouble.

Ross Hume Hall, Ph.D.: Beware of those fabricated foods. There is still too much we do not know about all the chemical additives that are hidden away in the fine print on the labels of processed foods.

Roger J. Williams, Ph.D., D.Sc.: On your startling biochemical individuality. Some amazing facts about your body you need to know if you want to understand yourself (and other people) better.

On “The Unsuspected Illness”—Hypothyroidism. How it can subtly sap health in a variety of ways . . . and a simple test to uncover it.

On Estrogens . . . The Controversy Over “The Pill.” Some women should never take it! Some women should never take it beyond a certain age! Why?

Please use the coupon below, under our money-back at any time guarantee.

EXECUTIVE HEALTH, Pickfair Bldg., Rancho Santa Fe, CA 92067

Gentlemen: Enclosed is my check for \$_____ for a year's subscription to Executive Health to start with this month's issue. I have circled the three \$1.50 reports I am to receive free. It is understood that I am to get my money back if at any time during the entire year I become dissatisfied with your reports. In addition, I would appreciate your sending me a complete list of your 70 other reports because among them may be some from which I might greatly benefit and would otherwise miss.

NAME (please print) _____

ADDRESS _____

STATE/COUNTRY _____ ZIP _____ SN13

LIVE IN THE WORLD OF TOMORROW... TODAY!

And our FREE 164 PAGE CATALOG is packed with exciting and unusual values in hobby, electronic and science items — plus 4,500 finds for fun, study or profit... for every member of the family.

A BETTER LIFE STARTS HERE

SAVE 50%! 8 x 20 MONOCULAR

Fantastic bargain! Top quality Spy Scope, a \$30 value, now offered at \$14.95! Our special purchase saves you 50% and you get 100% coated optics; 393 ft. field of view. Only 2 oz.—stores in pocket, purse, glove compartment. Fits in your palm—peer into hard-to-see places without letting subject know you're spying. Great for birders and race fans; incl. neck strap, leatherette 3 1/2 x 1 1/2 x 2" case. Beautiful brushed metal finish. Buy two—one for a gift!
Stock No. 1568Q **\$14.95 Ppd.**



SOLAR ENERGY CUBE!

Unique demonstrator dramatically shows how sunlight converts to kinetic energy. Clear plastic Solar Energy Cube placed in the sun with its 3 highly efficient silicon solar cells powers the motor to whirl the propeller! Unit actually produces 1.5v DC, 225 ma. Same cells found in our mighty panels. Speed directly related to sunlight available. Nothing to wear out! Great for executives, hobbyists, teachers.
No. 42,287Q ... (4 x 4 x 4") **\$19.95 Ppd.**



KNOW YOUR ALPHA FROM THETA!

For greater relaxation, concentration, listen to your Alpha-Theta brain waves. Ultra-sensitive electrode head-band slips on/off in seconds—eliminates need for messy creams, etc. Attach'd to amplifier, filters brainwaves, signals beep for ea. Alpha or Theta wave passed. Monitoring button simulates Alpha sound; audio & visual (L.E.D.) feedback. Reliable, easy-to-use unit comparable to costlier models. Completely safe. Comprehensive instruction booklet.



No. 1635Q (8 x 3 x 4"; 24 oz.) **\$149.50 Ppd.**
No. 71,809Q, LOW COST "Starter" UNIT **\$55.00 Ppd.**

ELECTRONIC DIGITAL STOPWATCH: \$49.95

The price alone obsoletes your wind-up timer and it's ±0.002% accurate! Hand-held, you start, stop, reset compact 6-ounce w/one hand; times to 59 mins, 59.9 secs in 1/10 increments. Failsafe design (cannot be accidentally reset), solid-state electronics! Incl. neckstrap, repl. batts.
No. 1671Q (5-DIGIT LED DISPLAY) **\$49.95 Ppd.**
SPLIT ACTION W/NICADS, RECHARGER
No. 1669Q (5-DIGIT LED DISPLAY) **\$79.95 Ppd.**
DELUXE SPLIT ACTION BATTERY MODEL
No. 1653Q (6-DIGIT NEON DISPLAY) **\$149.95 Ppd.**

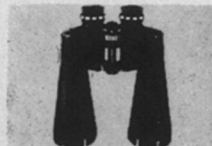


NEW! THE UNIQUE EDMUND 4 1/2", f/4 NEWTONIAN RICHEST FIELD REFLECTOR TELESCOPE

Clearer, brightest, most spectacular wide angle views of moon, stars, comets, galaxies ever—and portable! See heavenly wonders! Sets up in seconds (pre-collimated, ready to use). Pop the eyepiece in, focus—and zing! 3 1/2" field of view gives you more stars in a single view than any other type 'scope! Bright, crisp, finely resolved images. For sky gazing and earth gazing! Take it anywhere (only 17", 10 lb.), easily use it over your shoulder, (has adjustable carrying strap), in your lap, on a tripod; rotate the spherical base on its own mount for use on a table, car hood. Top quality system features 4 1/2", f/4 parabolic primary mirror (1/8 wave, 17" F.L.); std. 28mm Kellner eyepiece (15X). No other telescope like it—It's even brighter red!



No. 2001Q **\$149.95 Ppd.**



NASA-CHOSEN FOR APOLLO/SOYUZ

157 mi. out in space, the Astronauts used this super 20x60 binocular (modified) to view Earth! Our biggest, most powerful for distance. Far-off objects come in big, clear & sharp to the edge through big 60mm objective lenses; 173-ft. field of view at 1000 yds. Relative brightness, 9.0. Fully coated optics; 20X spcl design eye lenses. Coated BK-7 Porro prism. Extra long All-American style with fold-down rubber eyecups. Includes case & straps.
No. 1556Q ... (9 1/4 x 8 1/2"; 47.5 oz.) **\$99.95 Ppd.**
8 x 30 EUROPEAN STYLE
No. 1559Q (4 1/2 x 6 1/4"; 19 oz.) **\$29.95**



50-150-300 POWER MICROSCOPE

Amazing Value—3 Achromatic Objective Lenses on Revolving Turret! Color-corrected, cemented achromatic lenses in objectives give far superior results to single lenses usually found in this microscope price range. Results are worth the difference! Fine rack and pinion focusing. Imported!
Stock No. 70,008Q **\$39.95 Ppd.**
MOUNTED 500 POWER OBJECTIVE:
Threaded achromatic lenses, 3mm F.L.
Stock No. 30,197Q **\$10.75 Ppd.**



SUPER POWER FOR ANY RADIO

New antenna assist turns a tiny transistor into a tiger, has pulled in stations up to 1000' miles away! Just set beside radio (no wires, clips, grounding) and fine-tune Select-A-Tenna's dial to same frequency—"gangbusters"! Great for clearing weak signals in radio depressed areas, off-coast islands, crowded frequency stations. Solid state—uses no electricity, batts., tubes.
Stock No. 72,095Q **\$19.95 Ppd.**
ULTRA SELECT-A-TENNA
No. 72,147Q ("OVER 1000 MI.) **\$24.95 Ppd.**

MAIL COUPON FOR GIANT FREE CATALOG!

164 PAGES • MORE THAN 4500 UNUSUAL BARGAINS

Completely new Catalog. Packed with huge selection of telescopes, microscopes, binoculars, magnets, magnifiers, prisms, photo components, ecology and Unique Lighting items, parts, kits, accessories — many hard-to-get surplus bargains. 100's of charts, illustrations. For hobbyists, experimenters, schools, industry.

EDMUND SCIENTIFIC CO.
300 Edscorp Building, Barrington, N. J. 08007
Please rush Free Giant Catalog "Q"

Name _____
Address _____
City _____ State _____ Zip _____



COMPLETE AND MAIL WITH CHECK, M. O. OR CHARGE NO.
EDMUND SCIENTIFIC CO. 300 Edscorp Building, Barrington, N.J. 08007

How Many Stock No.	Description	Price Each	Total
<input type="checkbox"/> PLEASE SEND GIANT FREE CATALOG "Q"			
Charge my <input type="checkbox"/> American Exp.			
<input type="checkbox"/> BankAmericard <input type="checkbox"/> Master Chg.			

Interbank No. _____
My Card No. Is _____
I enclose check money order for TOTAL \$ _____
Signature _____

Card Expiration Date _____
30-DAY MONEY-BACK GUARANTEE.
You must be satisfied or return any purchase in 30 days for full refund. *\$15.00 minimum
Name _____
Address _____
City _____ State _____ Zip _____